



ecology and environment, inc.

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MEMORANDUM

DATE: June 30, 2015

TO: Eric Nuchims, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-4 Chemist, E & E, Seattle, Washington *MW*

SUBJ: Organic Data Quality Assurance Review, John Day Vapor Response Site,
John Day, Oregon

REF: TDD: 15-05-0005 PAN: 1004530.0004.111.02

The data quality assurance review of 3 water samples collected from the John Day Vapor Response site in John Day, Oregon, has been completed. Volatile Organic Compound (VOC) analysis (EPA Method 8260) was performed by TestAmerica, Inc., Tacoma, Washington. All sample analyses were evaluated following EPA's Stage 2B and/or 4 Data Validation Electronic and/or Manual Process (S2B/4VE/M).

The samples were numbered: 15053120 15053121 15053123

Data Qualifications:

1. **Sample Holding Times: Acceptable.**

The samples were maintained and received within the QC limits of $< 6^{\circ}\text{C}$. The samples were collected on June 2, 2015, and were analyzed by June 6, 2015, therefore meeting QC criteria of less than 7 days between collection and analysis for unpreserved water samples.

2. **Tuning: Acceptable.**

Tuning was performed at the beginning of each 12-hour analysis sequence. All results were within QC limits.

3. **Initial Calibration: Acceptable.**

All average Relative Response Factors (RRFs) were within the QC limits. All Relative Standard Deviations (RSDs) were within the QC limits.

4. **Continuing Calibration: Satisfactory.**

All RRFs were within the QC limits except chloroethane with a low RRF in the June 4, 2015 calibration; associated sample quantitation limits were rejected (R). All % differences were within the QC limits except dichlorofluoromethane, chloromethane, vinyl chloride, bromomethane, chloroethane, and trichlorofluoromethane with low recoveries and naphthalene and t-butylbenzene with high recoveries in the June 4, 2015 calibration. No actions were taken based on the high recovery outliers if they were not detected in any associated samples. Positive results associated with high outliers were qualified as

estimated quantities with a high bias (JH). Positive results and sample quantitation limits associated with low recovery outliers were qualified as estimated quantities with a low bias (JL or UJL).

5. Blanks: Satisfactory.

A method blank was analyzed for each 20 sample batch per matrix. There were no detections in any method blank except the tentatively identified compound ethyl methacrylate (0.343 ug/L); no actions were taken as this analyte was not detected in any samples.

6. System Monitoring Compounds (SMCs): Satisfactory.

All SMC recoveries were within QC limits except one low and one high recovery in sample 15053121; associated positive results and sample quantitation limit were qualified as estimated quantities with an unknown bias (JK or UJK).

7. Blank Spike (BS)/BS Duplicate (BSD) Analysis: Satisfactory.

BS and BSD analyses were performed per SDG or per matrix per concentration level, whichever was more frequent. All recoveries were within QC limits except 1,2,3-trichlorobenzene with high recoveries in the June 4, 2015 BS/BSD and 1,2-dibromoethane, 1,2,3-trichlorobenzene, and naphthalene with high BS and/or BSD recoveries in the June 5, 2015 BS/BSD. No actions were taken based on any high recovery outliers as they were not detected in any associated sample.

8. Duplicate Analysis: Acceptable.

Laboratory spike duplicate analysis was performed per SDG or per matrix per concentration level, whichever was more frequent. All spike duplicate results were within QC limits.

9. Internal Standards: Acceptable.

All internal standards were within ± 30 seconds of the continuing calibration internal standard retention times. All area counts were within 50 % to 200 % of the continuing calibration area counts.

10. Precision and Bias Determination: Not Performed.

Samples necessary to determine precision and bias were not provided to the laboratory. All results were flagged "PND" (Precision Not Determined) and "RND" (Recovery Not Determined), although the flags do not appear on the data sheets.

11. Performance Evaluation Sample Analysis: Not Provided.

Performance evaluation samples were not provided to the laboratory.

12. Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in the Site-Specific Sampling Plan and/or Sampling and Quality Assurance Plan, the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- JH - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a high bias.
- JL - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with a low bias.
- JK - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias.
- JQ - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample with an unknown direction of bias and falls between the MDL and the Minimum (or Practical) Quantitation Limit (MQL, PQL).
- N - The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification".
- NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053120

Lab Sample ID: 580-50495-1

Date Sampled: 06/02/2015 1650

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662479.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2107

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2107

Analyte	Result (ug/L)	Qualifier	MDL	RL
Dichlorodifluoromethane	ND	*A	0.31	2.0
Chloromethane	ND	*A	0.64	5.0
Vinyl chloride	ND	*A	0.22	1.0
Bromomethane	ND	*A	0.27	5.0
Chloroethane	ND	*A	0.40	5.0
Trichlorofluoromethane	ND	*A	0.63	3.0
1,1-Dichloroethene	ND	*	0.33	2.0
Methylene Chloride	ND	*	1.3	5.0
trans-1,2-Dichloroethene	ND	*	0.24	1.0
1,1-Dichloroethane	ND	*	0.44	2.0
2,2-Dichloropropane	ND	*	0.68	3.0
cis-1,2-Dichloroethene	ND	*	0.21	1.0
Bromochloromethane	ND	*	0.29	2.0
Chloroform	ND	*	0.17	1.0
1,1,1-Trichloroethane	ND	*	0.58	3.0
Carbon tetrachloride	ND	*	0.55	3.0
1,1-Dichloropropene	ND	*	0.50	3.0
Benzene	0.71	JM Q	0.42	2.0
1,2-Dichloroethane	ND	*	0.16	1.0
Trichloroethene	ND	*	0.51	3.0
1,2-Dichloropropane	ND	*	0.18	1.0
Dibromomethane	ND	*	0.14	1.0
Bromodichloromethane	ND	*	0.30	2.0
cis-1,3-Dichloropropene	ND	*	0.20	1.0
Toluene	1.8	JM Q	0.44	2.0
trans-1,3-Dichloropropene	ND	*	0.16	1.0
1,1,2-Trichloroethane	ND	*	0.24	1.0
Tetrachloroethene	ND	*	0.75	3.0
1,3-Dichloropropane	ND	*	0.15	1.0
Dibromochloromethane	ND	*	0.20	1.0
1,2-Dibromoethane	ND	*	0.15	1.0
Chlorobenzene	ND	*	0.42	2.0
Ethylbenzene	ND	*	0.51	3.0
1,1,1,2-Tetrachloroethane	ND	*	0.48	2.0
1,1,2,2-Tetrachloroethane	ND	*	0.24	1.0
m-Xylene & p-Xylene	0.63	JM Q	0.13	3.0
o-Xylene	ND	*	0.49	2.0
Styrene	ND	*	0.62	5.0
Bromoform	ND	*	0.21	1.0
Isopropylbenzene	ND	*	0.30	2.0
Bromobenzene	ND	*	0.42	2.0
N-Propylbenzene	ND	*	0.57	3.0
1,2,3-Trichloropropane	ND	*	0.41	2.0
2-Chlorotoluene	ND	*	0.52	3.0
1,3,5-Trimethylbenzene	ND	*	0.50	3.0
4-Chlorotoluene	ND	*	0.46	2.0

MW 6-30-15

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053120

Lab Sample ID: 580-50495-1

Date Sampled: 06/02/2015 1650

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662479.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2107

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2107

Analyte	Result (ug/L)	Qualifier	MDL	RL
i-Butylbenzene	ND	* ^	0.53	3.0
1,2,4-Trimethylbenzene	ND	*	0.50	3.0
sec-Butylbenzene	ND	*	0.53	3.0
1,3-Dichlorobenzene	ND	*	0.44	2.0
4-Isopropyltoluene	ND	*	0.53	3.0
1,4-Dichlorobenzene	ND	*	0.39	2.0
n-Butylbenzene	ND	*	0.63	3.0
1,2-Dichlorobenzene	ND	*	0.35	2.0
1,2-Dibromo-3-Chloropropane	ND	*	0.40	2.0
1,2,4-Trichlorobenzene	ND	*	0.23	1.0
1,2,3-Trichlorobenzene	ND	* ^	0.32	2.0
Hexachlorobutadiene	ND	*	0.49	2.0
Naphthalene	0.34	J * mu G H	0.26	2.0
Methyl tert-butyl ether	ND	*	0.17	1.0
Ethyl t-butyl ether	ND	*	0.34	5.0
Diisopropyl ether	ND	*	0.12	1.0
Tert-amyl methyl ether	ND	*	0.29	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	100		85 - 120
4-Bromofluorobenzene (Surr)	100		75 - 120
Dibromofluoromethane (Surr)	98		85 - 115
Trifluorotoluene (Surr)	100		70 - 136
1,2-Dichloroethane-d4 (Surr)	97		70 - 120

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053120

Lab Sample ID: 580-50495-1

Client Matrix: Water

Date Sampled: 06/02/2015 1650

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662479.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2107

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2107

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
Tentatively Identified Compound				

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Date Sampled: 06/02/2015 1800

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662478.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2041

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2041

Analyte	Result (ug/L)	Qualifier	MDL	RL
Dichlorodifluoromethane	ND	* ^	0.31	2.0
Chloromethane	ND	* ^	0.64	5.0
Vinyl chloride	ND	* ^	0.22	1.0
Bromomethane	ND	* ^	0.27	5.0
Chloroethane	ND	* ^	0.40	5.0
Trichlorofluoromethane	ND	* ^	0.63	3.0
1,1-Dichloroethene	ND	*	0.33	2.0
Methylene Chloride	ND	*	1.3	5.0
trans-1,2-Dichloroethene	ND	*	0.24	1.0
1,1-Dichloroethane	ND	*	0.44	2.0
2,2-Dichloropropane	ND	*	0.68	3.0
cis-1,2-Dichloroethene	ND	*	0.21	1.0
Bromochloromethane	ND	*	0.29	2.0
Chloroform	ND	*	0.17	1.0
1,1,1-Trichloroethane	ND	*	0.58	3.0
Carbon tetrachloride	ND	*	0.55	3.0
1,1-Dichloropropene	ND	*	0.50	3.0
1,2-Dichloroethane	ND	*	0.16	1.0
Trichloroethene	ND	*	0.51	3.0
1,2-Dichloropropane	ND	*	0.18	1.0
Dibromomethane	ND	*	0.14	1.0
Bromodichloromethane	ND	*	0.30	2.0
cis-1,3-Dichloropropene	ND	*	0.20	1.0
trans-1,3-Dichloropropene	ND	*	0.16	1.0
1,1,2-Trichloroethane	ND	*	0.24	1.0
Tetrachloroethene	ND	*	0.75	3.0
1,3-Dichloropropane	ND	*	0.15	1.0
Dibromochloromethane	ND	*	0.20	1.0
1,2-Dibromoethane	ND	*	0.15	1.0
Chlorobenzene	ND	*	0.42	2.0
1,1,1,2-Tetrachloroethane	ND	*	0.48	2.0
1,1,2,2-Tetrachloroethane	ND	*	0.24	1.0
Styrene	ND	*	0.62	5.0
Bromoform	ND	*	0.21	1.0
Isopropylbenzene	18 JK	*	0.30	2.0
Bromobenzene	ND	*	0.42	2.0
1,2,3-Trichloropropane	ND	*	0.41	2.0
2-Chlorotoluene	ND	*	0.52	3.0
1,3,5-Trimethylbenzene	79 JK	*	0.50	3.0
4-Chlorotoluene	ND	*	0.46	2.0
t-Butylbenzene	0.67 JK	*	0.53	3.0
sec-Butylbenzene	ND	*	0.53	3.0
1,3-Dichlorobenzene	ND	*	0.44	2.0
4-Isopropyltoluene	3.5 JK	*	0.53	3.0
1,4-Dichlorobenzene	ND	*	0.39	2.0
n-Butylbenzene	70 JK	*	0.63	3.0

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Date Sampled: 06/02/2015 1800

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C	Analysis Batch: 580-191201	Instrument ID: TAC043
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: vb001662478.D
Dilution: 1.0		Initial Weight/Volume: 10 mL
Analysis Date: 06/04/2015 2041		Final Weight/Volume: 10 mL
Prep Date: 06/04/2015 2041		

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dichlorobenzene	ND	*	0.35	2.0
1,2-Dibromo-3-Chloropropane	ND	*	0.40	2.0
1,2,4-Trichlorobenzene	ND	*	0.23	1.0
1,2,3-Trichlorobenzene	ND	* ^	0.32	2.0
Hexachlorobutadiene	ND	*	0.49	2.0
Methyl tert-butyl ether	ND	*	0.17	1.0
Ethyl t-butyl ether	ND	*	0.34	5.0
Diisopropyl ether	0.33	J L G K	0.12	1.0
Tert-amyl methyl ether	0.62	J L G K	0.29	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	124	X	85 - 120
4-Bromofluorobenzene (Surr)	73	X	75 - 120
Dibromofluoromethane (Surr)	94		85 - 115
Trifluorotoluene (Surr)	98		70 - 136
1,2-Dichloroethane-d4 (Surr)	92		70 - 120

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Client Matrix: Water

Date Sampled: 06/02/2015 1800

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662478.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2041

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2041

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Tentatively Identified Compound		None	

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Date Sampled: 06/02/2015 1800

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C	Analysis Batch: 580-191343	Instrument ID: TAC043
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: vb001662492.D
Dilution: 100		Initial Weight/Volume: 10 mL
Analysis Date: 06/05/2015 1829	Run Type: DL	Final Weight/Volume: 10 mL
Prep Date: 06/05/2015 1829		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Benzene	5700		42	200
Ethylbenzene	1500		51	300
m-Xylene & p-Xylene	6900		13	300
o-Xylene	2300		49	200
N-Propylbenzene	220	JQ	57	300
1,2,4-Trimethylbenzene	1500		50	300
Surrogate	%Rec	Qualifier	Acceptance Limits	
Toluene-d8 (Surr)	102		85 - 120	
4-Bromofluorobenzene (Surr)	99		75 - 120	
Dibromofluoromethane (Surr)	96		85 - 115	
Trifluorotoluene (Surr)	99		70 - 136	
1,2-Dichloroethane-d4 (Surr)	95		70 - 120	

mw
6/30/15

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Client Matrix: Water

Date Sampled: 06/02/2015 1800

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191343

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662492.D

Dilution: 100

Initial Weight/Volume: 10 mL

Analysis Date: 06/05/2015 1829

Run Type: DL

Final Weight/Volume: 10 mL

Prep Date: 06/05/2015 1829

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Tentatively Identified Compound		None	

MW 6/30/15

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Date Sampled: 06/02/2015 1800

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C	Analysis Batch: 580-191404	Instrument ID: TAC036
Prep Method: 5030B	Prep Batch: N/A	Lab File ID: hp358998.D
Dilution: 500		Initial Weight/Volume: 5 mL
Analysis Date: 06/06/2015 1657	Run Type: DL2	Final Weight/Volume: 5 mL
Prep Date: 06/06/2015 1657		

Analyte	Result (ug/L)	Qualifier	MDL	RL
Toluene	8800		220	1000
Naphthalene	ND		130	1000

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	107		85 - 120
4-Bromofluorobenzene (Surr)	94		75 - 120
Dibromofluoromethane (Surr)	102		85 - 115
Trifluorotoluene (Surr)	98		70 - 136
1,2-Dichloroethane-d4 (Surr)	84		70 - 120

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053121

Lab Sample ID: 580-50495-2

Client Matrix: Water

Date Sampled: 06/02/2015 1800

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Prep Method: 5030B

Dilution: 500

Analysis Date: 06/06/2015 1657

Prep Date: 06/06/2015 1657

Analysis Batch: 580-191404

Prep Batch: N/A

Run Type: DL2

Instrument ID: TAC036

Lab File ID: hp358998.D

Initial Weight/Volume: 5 mL

Final Weight/Volume: 5 mL

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Tentatively Identified Compound		None	

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053123

Lab Sample ID: 580-50495-3TB

Date Sampled: 06/02/2015 1902

Client Matrix: Water

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662477.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2015

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2015

Analyte	Result (ug/L)	Qualifier	MDL	RL
Dichlorodifluoromethane	ND	* A	0.31	2.0
Chloromethane	ND	* A	0.64	5.0
Vinyl chloride	ND	* A	0.22	1.0
Bromomethane	ND	* A	0.27	5.0
Chloroethane	ND	* A	0.40	5.0
Trichlorofluoromethane	ND	* A	0.63	3.0
1,1-Dichloroethene	ND	*	0.33	2.0
Methylene Chloride	ND	*	1.3	5.0
trans-1,2-Dichloroethene	ND	*	0.24	1.0
1,1-Dichloroethane	ND	*	0.44	2.0
2,2-Dichloropropane	ND	*	0.68	3.0
cis-1,2-Dichloroethene	ND	*	0.21	1.0
Bromochloromethane	ND	*	0.29	2.0
Chloroform	ND	*	0.17	1.0
1,1,1-Trichloroethane	ND	*	0.58	3.0
Carbon tetrachloride	ND	*	0.55	3.0
1,1-Dichloropropene	ND	*	0.50	3.0
Benzene	ND	*	0.42	2.0
1,2-Dichloroethane	ND	*	0.16	1.0
Trichloroethene	ND	*	0.51	3.0
1,2-Dichloropropane	ND	*	0.18	1.0
Dibromomethane	ND	*	0.14	1.0
Bromodichloromethane	ND	*	0.30	2.0
cis-1,3-Dichloropropene	ND	*	0.20	1.0
Toluene	ND	*	0.44	2.0
trans-1,3-Dichloropropene	ND	*	0.16	1.0
1,1,2-Trichloroethane	ND	*	0.24	1.0
Tetrachloroethene	ND	*	0.75	3.0
1,3-Dichloropropane	ND	*	0.15	1.0
Dibromochloromethane	ND	*	0.20	1.0
1,2-Dibromoethane	ND	*	0.15	1.0
Chlorobenzene	ND	*	0.42	2.0
Ethylbenzene	ND	*	0.51	3.0
1,1,1,2-Tetrachloroethane	ND	*	0.48	2.0
1,1,2,2-Tetrachloroethane	ND	*	0.24	1.0
m-Xylene & p-Xylene	ND	*	0.13	3.0
o-Xylene	ND	*	0.49	2.0
Styrene	ND	*	0.62	5.0
Bromoform	ND	*	0.21	1.0
Isopropylbenzene	ND	*	0.30	2.0
Bromobenzene	ND	*	0.42	2.0
N-Propylbenzene	ND	*	0.57	3.0
1,2,3-Trichloropropane	ND	*	0.41	2.0
2-Chlorotoluene	ND	*	0.52	3.0
1,3,5-Trimethylbenzene	ND	*	0.50	3.0
4-Chlorotoluene	ND	*	0.46	2.0

MW6-30-15

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053123

Lab Sample ID: 580-50495-3TB

Client Matrix: Water

Date Sampled: 06/02/2015 1902

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662477.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2015

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2015

Analyte	Result (ug/L)	Qualifier	MDL	RL
t-Butylbenzene	ND	* A	0.53	3.0
1,2,4-Trimethylbenzene	ND	*	0.50	3.0
sec-Butylbenzene	ND	*	0.53	3.0
1,3-Dichlorobenzene	ND	*	0.44	2.0
4-Isopropyltoluene	ND	*	0.53	3.0
1,4-Dichlorobenzene	ND	*	0.39	2.0
n-Butylbenzene	ND	*	0.63	3.0
1,2-Dichlorobenzene	ND	*	0.35	2.0
1,2-Dibromo-3-Chloropropane	ND	*	0.40	2.0
1,2,4-Trichlorobenzene	ND	*	0.23	1.0
1,2,3-Trichlorobenzene	ND	* A	0.32	2.0
Hexachlorobutadiene	ND	*	0.49	2.0
Naphthalene	ND	* A	0.26	2.0
Methyl tert-butyl ether	ND	*	0.17	1.0
Ethyl t-butyl ether	ND	*	0.34	5.0
Diisopropyl ether	ND	*	0.12	1.0
Tert-amyl methyl ether	ND	*	0.29	5.0

Surrogate	%Rec	Qualifier	Acceptance Limits
Toluene-d8 (Surr)	93		85 - 120
4-Bromofluorobenzene (Surr)	100		75 - 120
Dibromofluoromethane (Surr)	98		85 - 115
Trifluorotoluene (Surr)	99		70 - 136
1,2-Dichloroethane-d4 (Surr)	96		70 - 120

MW 6-30-15

Analytical Data

Client: Ecology and Environment, Inc.

Job Number: 580-50495-1

Client Sample ID: 15053123

Lab Sample ID: 580-50495-3TB

Client Matrix: Water

Date Sampled: 06/02/2015 1902

Date Received: 06/04/2015 1558

8260C Volatile Organic Compounds by GC/MS

Analysis Method: 8260C

Analysis Batch: 580-191201

Instrument ID: TAC043

Prep Method: 5030B

Prep Batch: N/A

Lab File ID: vb001662477.D

Dilution: 1.0

Initial Weight/Volume: 10 mL

Analysis Date: 06/04/2015 2015

Final Weight/Volume: 10 mL

Prep Date: 06/04/2015 2015

Tentatively Identified Compounds

Number TIC's Found: 0

Cas Number	Analyte	RT	Est. Result (ug/L)	Qualifier
	Tentatively Identified Compound		None	

MW 6/30/15